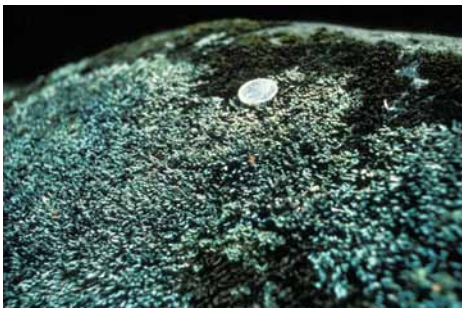
Rock gnome lichen
Gymnoderna lineare



Rock gnome lichen, USFWS

Status: Endangered,

Description: One of two lichens on the federal listed of threatened and endangered species, rock gnome lichen is the only member of the genus *Gymnodera* to live in North America, other members living in the mountains of east Asia, including Japan and the Himalayas.

It occurs in dense colonies of narrow strap-like lobes that are about 1 millimeter across and generally one to two centimeters long. These lobes are blue gray on the terminal upper surface, and generally shiny white on the lower surface, grading to black near the base.

The fruiting bodies are born on the tips of these lobes, are black, and have been found from July through September. The primary means of propagation appears to be asexual, with colonies spreading clonally.

Habitat: Rock gnome lichen is primarily limited to vertical rock faces where seepage water from forest soils above flows at (and only at) very wet times. It appears the species needs a moderate amount of light, but that it cannot tolerate high-intensity solar radiation. It does well on moist, generally open, sites, with northern exposures, but needs at least partial canopy coverage where the aspect is southern or western.

Range: This lichen is known from the Southern Appalachian Mountains of North and South Carolina, Tennessee, and Georgia, in areas of high humidity, either at high elevations, where it is frequently bathed in fog, or in deep gorges at lower elevations.

Listing: Endangered, January 18, 1995. 60 FR 3557 3562

Critical habitat: None designated

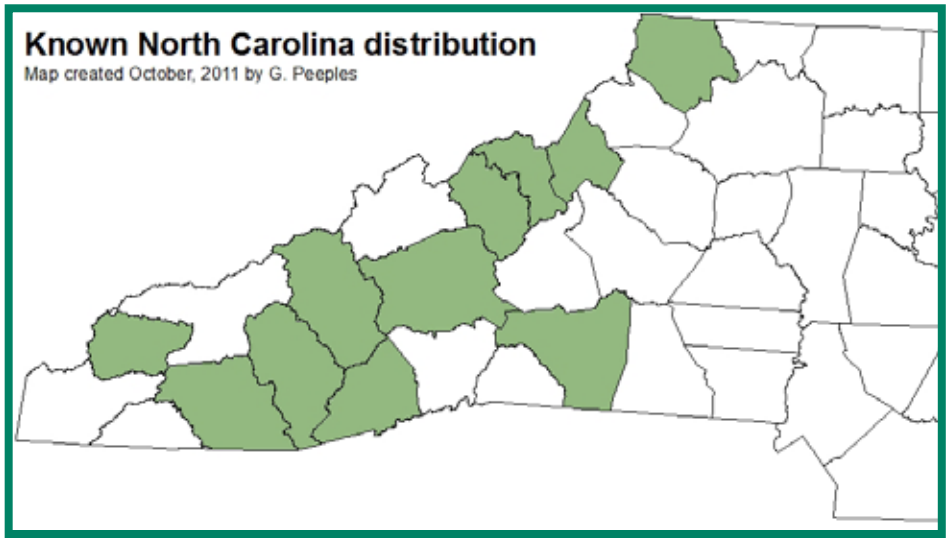
Threats: Found at locations that often coincide with popular recreational destinations, one of the greatest threats to the rock gnome lichen is trampling and associated soil erosion and compaction from hikers, climbers, and sightseers.

The areas where the lichen is found, both at high elevation, and along streams, are both threatened by invasive insects. At high elevations, the balsam woolly adelgid, an Asian insect, attacks and kills Fraser fir trees; while in streamside areas, the hemlock woolly adelgid attacks and kills hemlock trees, a key riparian tree species. The removal of these trees could diminish the amount of shade on lichen sites, exposing the lichen to excess sunlight.

Other threats include recreational and residential development, collection, and air pollution.

Why should we be concerned about the loss of species? Extinction is a natural process that has been occurring since long before the appearance of humans. Normally, new species develop through a process known as speciation, at about the same rate other species become extinct. However, because of air and water pollution, forest clearing, loss of wetlands, and other human-induced environmental changes, extinctions are now occurring at a rate that far exceeds the speciation rate.

All living things are part of a complex and interconnected network. We depend on the diversity of plant and animal life for our recreation, nourishment, many of our lifesaving medicines, and the ecological functions they provide. One-quarter of all the prescriptions written in the United States today contain chemicals that were originally discovered in plants and animals. Industry and agriculture are increasingly making use of wild plants, seeking out the remaining wild strain of many common crops, such as wheat and corn, to produce new hybrids that are more resistant to disease, pests,



and marginal climatic conditions. Our food crops depend on insects and other animals for pollination.

Healthy forests clean the air and provide oxygen for us to breathe. Wetlands clean water and help minimize the impacts of floods. These services are the foundation of life and depend on a diversity of plants and animals working in concert. Each time a species disappears, we lose not only those benefits we know it provided but other benefits that we have yet to realize.

What you can do to help:
Tread lightly and stay on designated trails. Vegetation on popular high mountains has virtually been destroyed by human trampling.

Visit arboretums, botanical gardens, and parks and learn all you can about endangered species and the causes of their declines.

Participate in the protection of our remaining wild lands and the restoration of damaged ecosystems.

Be careful with the use and disposal of pesticides and other chemicals, especially near sensitive habitats.

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